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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,372	03/25/2004	Shin Yasuda	119258	4726

25944 7590 05/09/2008

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EXAMINER	
CHANG, AUDREY Y	
ART UNIT	PAPER NUMBER
2872	

MAIL DATE	DELIVERY MODE
05/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,372	YASUDA ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,12-19,21-31 and 33-45* is/are pending in the application.

4a) Of the above claim(s) *1,3-9,19,21-28,30 and 36-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10, 12-18, 29, 31, 33-35, 41-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 29, 2008, has been entered.

2. This Office Action is also in response to applicant's amendment filed on February 29, 2008, which has been entered into the file.

3. By this amendment, the applicant has amended withdrawn claims 1, 3, 19, 21, 22, 28, 30, and pending claims 10, 12-13, 29, 31, 33-35, 41-42 and has newly added claims 43-45.

4. **Claims 1, 3-9, 19, 21-28, 30 and 36-40 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 28, 2007.

5. **Claims 10, 12-18, 29, 31, 33-35 and 41-45 remain pending in this application.**

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 10, 12-18, 29, 31, 33-35 and 41-45 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

8. **Claims 31, 41 and 42 have been amended** to include the phrase "a detector obtains reproduced light from the optical recording medium" and the phrase "a new hologram is recorded in a state where the light beam intensity of the reproduced light beam ... is minimized". **Firstly**, it is not clear how could the detector "obtain" a reproduced light. The reproduced light is **generated** by illuminating the recording medium, with holograms recorded. The detector can only detect the reproduced light not obtains it as if it can generate it. **Secondly**, it is not clear how does such detection of the intensity of the reproduced light will make the intensity of reproduced light minimized. **Thirdly**, since there seems to be a plurality of data pages recorded as a plurality of holograms, it is not clear the reproduced light is referred to the reproduced light from which hologram. The specification and claims fail to disclose how could the plurality of data be recorded as a single hologram and how could the reproduced holographic light, which should be from a plurality of holograms be a single light beam. The specification fails to teach how to minimize the light intensities of the reproduced lights of holograms by detecting intensity of a single light beam. If the reproduction light is illuminated at the part of the recording medium with previously recorded hologram, the reproduced light will have a non-zero intensity, however it is not clear what does it mean by the intensity is "minimized". What is the process or means to make the intensity "minimized"? The specification fails to disclose such explicitly. **Fourthly**, the specification fails to disclose how to record a plurality of pages of data into a single hologram?

For newly added claims 43-45, the specification and the claims fail to disclose what is the means or process for "maximizing" the light intensity of the new hologram and what is the means or process for "minimizing" the reproduced light beam. The terms "maximized" and "minimized" have the suggestion that some quantity is being *increased* to maximize or *decreased* to minimize. What is the process or means for carrying out such increasing and/or decreasing?

Claim Objections

9. Claims **10, 12-18, 29, 31, 33-35 and 41-45 are** objected to because of the following informalities:

. (1). Claims 31, 41 and 42 have been amended to include the phrase of "a detector which obtains reproduced light from the optical recording medium and detects a light beam intensity of the reproduced light" or the phrase "obtaining a reproduced light from the optical recording medium and detecting a light beam intensity of the reproduced light". Claims further recite the phrase "a new hologram is recorded in a state where a diffraction light beam intensity of the reproduced light ... is minimized". The claims fail to disclose what are structural and logical relationships between the detecting of reproduced light and the recording of the new hologram. The applicant being one skilled in the art must understand the following: (1). When a hologram is being recorded, the reproduction of other holograms previously recorded is not taking place, so the reproduced light is always at minimum or zero, since there is no reproduction is taking place (2). The previous holograms are recorded in certain part of the hologram recording medium, so if the reproduction light is illuminated at the part of the medium that has no hologram recorded, then the reproduced light intensity is at zero or minimum. If the reproduction light is illuminated at the part of the recording medium with previously recorded hologram, the reproduced light will have a non-zero intensity, however it is not clear what does it mean by the intensity is "minimized". What is the process or means to make the intensity "minimized"? The scopes of the claims therefore are confusing and indefinite. Since there is no definite connection between the detection of the reproduced light of the previous recorded hologram and the recording of the new hologram.

(2). The claims have been amended to include the phrase "a plurality of pages of a hologram" that is confusing. The specification discloses to record the plurality of pages of data by multiplexing method into the recording medium, this means each page is recorded separately as a hologram. The plurality of the data pages are not recorded to form a single hologram but to be recorded multiplexedly as a plurality of holograms.

(3). Claims have been amended to include the phrase "new hologram" yet the claims fail to distinguish if the phrase "a new hologram" is referred to the same or different hologram.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 10, 14, 29 and 31, 41-42 and newly added claims 43-45 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Tanaka et al (PN. 6,301,028).

Tanaka et al teaches a *holographic recording apparatus and method* that is comprised of a *laser light beam* (15, Figure 2) for emitting a *coherent* light beam, a *beam splitter* (16) for separating the coherent light beam into a *reference* light beam and a *source* light beam (that will serve as the signal light beam), wherein the reference light beam is deflected by a mirror (17) so that optical paths for the reference light beam and the signal light beam are separated and are led to irradiate a volume holographic memory (10), *serves as the optical recording medium*, at the same time to record the interference pattern between the reference light beam and the signal light beam as hologram. Tanaka et al teaches that a *spatial light modulator* (12) is arranged in the optical path of the source light beam for *modulating* the source light beam in accordance with *recording page data* and therefore *converting* the source light beam

into a *signal light beam*, (please see column 5, lines 30-35). The data page information is supplied to the spatial light modulator via *an encoder* (25, Figure 2). *This means the decoder supplies the recording signal to the spatial light modulator for recording the intended hologram, (which can be identified as the new hologram).* Tanaka et al teaches that the *angle* between the reference light beam and the signal light beam can be kept constant, (please see the arrangement explicitly shown in Figure 2). The volume holographic memory or the optical recording medium are placed on a *driving unit* (19) serves as the *stage* such that the volume holographic memory can be moved *vertically* so that the recording position for each of the hologram recording *is different*, to allow *spatial multiplexing recording* of the holograms for different pages of the data, (please see column 5, lines 7-49, column 6, lines 49-62 and column 7, lines 13-21).

With regard to claims 10, 29, 31 and 41 and 42, Tanaka et al teaches that the volume holographic memory (10) is movable or shiftable vertically so that the new hologram for each page of the data supplies by the spatial light modulator is recorded at **different** spatial locations of the volume holographic memory to perform spatial multiple recording, (please see column 7, lines 2-8). This is known in the art as **spatially multiplexing**. The newly recorded hologram is recorded at a spatially **shifted** position from the previously recorded hologram, (please see the explicitly demonstration in Figures 6 and 8). The newly recorded hologram is certainly recorded at a **state** where a diffraction light beam intensity from each page of the hologram recorded previously in the memory is minimized, since **firstly** when the newly recorded hologram is recorded the previously recorded holograms are not been reproduced so there is no diffraction light beam from them and **secondly**, since the location of the newly recorded hologram is *spatially shifted* from the previously recorded holograms even if there is diffraction light beam from previous recorded holograms, the intensity of such diffraction beam *at the location* of the newly recorded hologram is *zero* (since there is no previous holograms recorded at the location for the recording of the new hologram) or minimized compared to the diffraction light beam from the newly

recorded holograms. **With regard to newly added claims 43-45**, by the same token, the light intensity of the recording lights (i.e. signal light and the reference light beams) for the new hologram is maximized in the sense that they are not zero for recording the new hologram.

Claims 31, 41 and 42, have been amended to include the feature concerning a detector for detecting the reproduced light from the previously recorded hologram. Tanaka et al teaches explicitly to include a detector (22, Figures 1 and 2) for detecting the reproduced light reconstructed from the previously recorded holograms. The light intensity which is referred to the reproduced holographic image is implicitly detected.

With regard to claim 14, Tanaka et al teaches that the volume holographic memory or the optical recoding medium is comprised of a photorefractive crystal, (please see column 5, lines 46-49).

With regard to claim 31, Tanaka et al teaches that the volume holographic memory or the optical recording medium is moved vertically to achieve *spatial multiplexing recording* of the holograms. This means the page data recorded as the successive holograms are *recorded at different locations*. This means that if the recorded holograms are reproduced, the locations of maximum light intensity of the reproduced holograms will not be overlapped and will be shifted at a predetermined amount.

This reference has therefore anticipated the claims.

12. Claims 10, 29, 31, 41 and 42 and newly added claims 43-45 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to King et al (PN. 6,721,076).

King et al teaches a *system and method for holographic storage* that are comprised of a *laser light source* (110, Figure 1 and 710 in Figure 7), for emitting a *coherent light beam* and a *beam splitter* (115 or 715), for separating the coherent light beam into a *reference light beam* (120 or 720) and an *object light beam* serves as *the signal light beam* (125 or 725). The optical paths for the reference light beam and the object or signal light beam are being separated by the *beam splitter and associated mirrors* such

that they propagate to a *holographic storage media*, serves as the *optical recording medium*, (150 or 750) at the same time so that the interference pattern between the reference light beam and the signal light beam is recorded as the hologram. King et al teaches that a *spatial light modulator* (165 or 755) is provided in the optical path of the object or signal light beam to impose a data pattern on the object light beam for recording a *data page* as the hologram. The *data pattern* is supplied to the spatial light modulator by a pattern encoder via a *control electronic* (170), (please see column 1, line 53 to column 2, line 6, column 6 line 66 to column 7, line 48). *This means the recording signal (concerning the data pattern for the new hologram) is supplied by the page encoder via the control electronic to the spatial light modulator.* King et al teaches that the holographic storage media (150 or 750) is placed on a *moving assembly* (185), serves as the *stage*, so that the storage media is moved or translated so that the recording positions for each page information is different, to achieve the **shift or spatial multiplexing** recording method, (please see column 10, lines 49-65).

With regard claims 41 and 42 and **claims 10, 29 and 31**, King et al teaches that the storage media is movable or shiftable by a moving assembly (185) so that the new hologram for each page of the data supplies by the spatial light modulator is recorded at *different* spatial locations of the storage media to perform **spatial multiple recording**, (please see column 10, lines 49-65). This is known in the art as **spatially multiplexing**. The newly recorded hologram is recorded at a spatially shifted position from the previously recorded hologram. The newly recorded hologram is certainly recorded at a **state** where a diffraction light beam intensity from each page of the hologram recorded previously in the storage media is minimized, since **firstly** when the newly recorded hologram is recorded the previously recorded holograms are *not been reproduced* so there is no diffraction light beam from them and **secondly**, since the location of the newly recorded hologram is *spatially shifted* from the previously recorded holograms even if there is diffraction light beam from previous recorded holograms, the intensity of such diffraction beam *at the location* of the newly recorded hologram is zero (since there is no holograms recorded at this

location) or minimized compared to the diffraction light beam from the newly recorded holograms. **With regard to newly added claims 43-45**, by the same token, the light intensity of the recording lights (i.e. signal light and the reference light beams) for the new hologram is maximized in the sense that they are not zero for recording the new hologram.

Claims 31, 41 and 42, have been amended to include the feature concerning a detector for detecting the reproduced light from the previously recorded hologram. King et al teaches explicitly to include a detector (354, Figure 3) for detecting the reproduced light reconstructed from the previously recorded holograms. The light intensity which is referred to the reproduced holographic image is implicitly detected.

With regard to claim 31, King et al teaches that the holographic storage media or the optical recording medium is shifted to achieve *spatial or shift multiplexing recording* of the holograms. This means the page data recorded as the successive holograms are *recorded at different locations*. This means that if the recorded holograms are reproduced, the locations of maximum light intensity of the reproduced holograms will not be overlapped and will be shifted by a predetermined amount.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 12-13, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tanaka et al in view of the patent issued to Kawano et al (PN. 6,452,890).

The system and method for holographic storage taught by Tanaka et al as described for claims 10 and 31 above has met all the limitations of the claims.

With regard to claims 12 and 34, Tanaka et al does not teach that the polarization states for the signal beam or reference beam at the time of recording each page is different from the polarization state for recording each page of previously recorded hologram. **Claims 12 and 34 also have been amended** to include the phrase the optical recording medium comprises material with photo-induced birefringence. This reference however does not teach such explicitly. **Kawano** et al in the same field of endeavor teaches a hologram recording medium that is comprised of photo-induced birefringence material wherein holograms that either with the signal and reference beams having the same polarization state (Figure 3a) or orthogonal polarization state (Figure 3b) can be recorded, (please see column 9, lines 20-33). It would then have been obvious to one skilled in the art to apply the teachings of Kawano et al to use a recording medium material having photo-induced birefringent property for the benefit of allowing different polarization sensitive holograms be recorded to increase the recording density. **With regard to claims 13 and 35,** it would have been obvious to one skilled in the art to modify the hologram multiplex recording by applying the teachings of Kawano et al to use different polarization specifics (i.e. parallel or orthogonal to each other) between each page of recording to increase the multiplicity of the hologram recording for the benefit of increasing the recording density of the hologram.

With regard to claim 33, Kawano et al teaches that an analyzer (108, Figure 26) is used with the photo-detector (109) to select the reconstructed or reproduced light beam according to its polarization state to be detected by the photo-detector.

16. Claims 12-13, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to King et al in view of the patent issued to Kawano et al (PN. 6,452,890).

The system and method for holographic storage taught by King et al as described for claims 10 and 31 above has met all the limitations of the claims.

With regard to claims 12 and 34, King et al teaches that the holographic storage media includes a reflective substrate (22, Figure 2A) and a quarter wave plate or polarization shifting layer (24) such that the successive recording of the holograms by using the incident reference light beam and the reflected reference light beam will have the reference light having different polarization state.

Claims 12 and 34 have been amended to include the phrase the optical recording medium comprises material with photo-induced birefringence. This reference however does not teach such explicitly. **Kawano** et al in the same field of endeavor teaches a hologram recording medium that is comprised of photo-induced birefringence material wherein holograms that either with the signal and reference beams having the same polarization state (Figure 3a) or orthogonal polarization state (Figure 3b) can be recorded, (please see column 9, lines 20-33). It would then have been obvious to one skilled in the art to apply the teachings of Kawano et al to use a recording medium material having photo-induced birefringent property for the benefit of allowing different polarization sensitive holograms be recorded to increase the recording density. With regard to claims 13 and 35, it would have been obvious to one skilled in the art to modify the hologram multiplex recording by applying the teachings of Kawano et al to use different polarization specifics (i.e. parallel or orthogonal to each other) between each page of recording to increase the multiplicity of the hologram recording for the benefit of increasing the recording density of the hologram.

With regard to claim 33, King et al teaches that in the reconstructing phase, the reproduced hologram (or the diffracted light beam from the recorded hologram) is reconstructed by illuminating the

medium with a reference beam (320, Figure 3) and the reconstructed hologram light beam is received by the polarization beam splitter (352) with certain polarization state (serves as the analyzer) to allow the reconstructed light beam be detected by a detector, (354). Although this reference teaches a reflected instead of a transmitted signal is being detected, however such modification is considered to be obvious to one skilled in the art since it only requires rearranging part to make the polarization beam splitter transmitting and reflecting different polarization states as shown in the Figure.

17. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tanaka et al in view of the patent issued to Hesselink et al (PN. 7,129,006).

The system and the method for holographic storage taught by Tanaka et al as described for claim 10 above has met all the limitations of the claims.

Tanaka et al teaches that the holographic storage medium is comprised of photorefractive material, (please see column 1, lines 15-17), however it does not teach explicitly that the medium is comprised of the materials claimed in the claims. **Hesselink** et al in the same field of endeavor teaches a variety of materials that are suitable for holographic recording medium. Hesselink et al teaches that photopolymer such as photo-addressable "side-chain" polymers can be suitable for holographic recording medium. This included *azobenzene* material, (please see column 26, lines 52-60). This material is polarization-sensitive. Hesselink et al also teaches that *photochromic* material is suitable for holographic recording medium, (please see column 6,.lines 44-46). It would then have been obvious to one skilled in the art to apply the teachings of **Hesselink** et al to modify the holographic storage media of Tanaka et al to use the different suitable materials to record the hologram for the benefit of fulfilling different efficiency for different applications required.

18. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to King et al in view of the patent issued to Hesselink et al (PN. 7,129,006).

The system and the method for holographic storage taught by King et al as described for claim 10 above has met all the limitations of the claims.

King et al teaches that the holographic storage medium is comprised of photopolymer, (please see column 7, line 53), however it does not teach explicitly that the medium is comprised of the materials claimed in the claims. **Hesselink** et al in the same field of endeavor teaches a variety of materials that are suitable for holographic recording medium. Hesselink et al teaches that photopolymer such as photo-addressable "side-chain" polymers can be suitable for holographic recording medium. This included *azobenzene* material, (please see column 26, lines 52-60). This material is polarization-sensitive. Hesselink et al also teaches that *photochromic* material is suitable for holographic recording medium, (please see column 6,.lines 44-46). It would then have been obvious to one skilled in the art to apply the teachings of **Hesselink** et al to modify the holographic storage media of King et al to use the different suitable materials to record the hologram for the benefit of fulfilling different efficiency for different applications required.

Double Patenting

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. **Claims 10, 29 and 31 and newly added claims 41 and 42 are rejected on the ground of nonstatutory obviousness-type double patenting** as being unpatentable over claim 4 of **U.S. Patent No. 7,218,597**. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both claim a holographic recording for multiple recording a plurality of page. The angle between the reference light beam and the signal light beam is fixed and one of the reference light beam, the object light beam and the optical recording medium is moved to change the recording position. The limitations of recording of hologram at a state when the diffraction light intensity from the previously recorded hologram is minimized is inherently achieved by the spatial multiplexing recording method. Furthermore, the inclusion of detector for detecting the intensity of the reproduced light is considered standard arrangement for holographic recording/reproducing system for detecting and read the recorded hologram.

Response to Arguments

21. Applicant's arguments filed on February 29, 2008 have been fully considered but they are not persuasive. The newly amended and newly added claims have been fully considered and they are rejected for the reasons stated above. Applicant's arguments are mainly drawn to the newly amended features of the claims and they have been fully addressed in the reasons for rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
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